

## A NEW HOST RECORD FOR *SPHAEROPHTHALMA PENNSYLVANICA PENNSYLVANICA* (HYMENOPTERA: MUTILLIDAE)<sup>1, 2</sup>

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**ABSTRACT:** Wasps belonging to the family Mutillidae are known to be parasitic on the resting stages of other insects, including other Hymenoptera. However, host records are known for less than five percent of the described species. The mutillid *Sphaerophthalma pensylvanica pensylvanica* has been reported emerging from at least two different species and genera of sphecid hosts (Hymenoptera: Sphecidae). Here we report the emergence of *S. pensylvanica* from yet another species and genus of sphecid host, that being *Isodontia mexicana*. Details are described.

*Sphaerophthalma (Sphaerophthalma) pensylvanica pensylvanica* (Hymenoptera: Mutillidae) was first described as *Mutilla pensylvanica* by Lepeletier (1845), based on a male collected in Philadelphia. It is found from North Carolina to central Florida, Louisiana, Missouri, Kansas and Texas. A second subspecies, *S. pensylvanica scaeva*, was described as *M. scaeva* by Blake (1871). The female was described in the same publication as *M. balteola* (Blake 1871). It is found from North Carolina to Massachusetts, Ohio, Illinois, Missouri, Kansas and Texas. A third subspecies, *Sphaerophthalma (!) pennsylvanica (!) floridensis*, was described by Schuster (1944). It is found only in southern Florida. The females of all three subspecies are indistinguishable.

Members of the family Mutillidae are known to be parasitic on the resting stages (usually the prepupa or pupa) of other insects, including aculeate Hymenoptera. Of more than 4000 described species of Mutillidae, host records exist for less than five percent (Brothers 1972). *Sphaerophthalma pensylvanica* is one of the species for which at least some hosts are known.

Rau (1922) reported a male specimen of *S. pensylvanica scaeva* emerging from a cocoon of the mud dauber *Sceliphron caementarium* (Drury) (Hymenoptera: Sphecidae) in Missouri. He later (Rau 1928) reported males of *S. pensylvanica scaeva* having been reared from the cocoons of both *Trypoxylon (Trypargilum) politum* Say (Hymenoptera: Sphecidae) and from *Sceliphron* nests.

In 1984, a male mutillid was sent to Manley for identification. The mutillid

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was determined to be *S. pensylvanica pensylvanica*. It had emerged from the cocoon of a mud dauber (the host cocoon was not sent for determination) on 30 May 1984. The cocoon was collected by J. R. Brushwein in Clemson, South Carolina in March of 1984.

Here, we report the emergence of a male *S. pensylvanica pensylvanica* from a diapaused cocoon of another sphecid wasp, *Isodontia mexicana* (Saussure). This North American wasp ranges throughout the United States east of the Rocky Mountains, south into Mexico and Central America, and has also become established in Hawaii and France (Bohart & Menke 1963). Across this wide range, this species has been observed to nest in such above-ground cavities as hollow plant stems and twigs, rolled leaves, abandoned bee burrows in logs, artificial trap-nests, and the tubular leaves of pitcher plants (*Sarracenia*) (Bequaert 1930). *Isodontia mexicana* is one of the "grass carrier (or carrying) wasps" because the females are often seen carrying blades of grass in their mandibles (Bohart & Menke 1976). The females will then proceed to use these plant fibers to construct their nests.

Nesting by *I. mexicana* in the leaves of pitcher plants has been well documented (under synonym *Isodontia philadelphica* St. Farg.) (Hubbard 1896, Jones 1904, Fish 1976, Rymal & Folkerts 1982). Over 400 *Isodontia* nests in pitcher leaves were reared for a study on the nesting biology of this wasp (Carithers 1998). The male mutillid reported here was reared from an *I. mexicana* nest built in the tubular leaf of the pitcher plant *Sarracenia flava*. The nest was collected on 9 November 1996 in the Apalachicola National Forest in Liberty County, Florida. One intact *Isodontia* cocoon was contained in the one-celled nest. Upon holding the cocoon up to a light source, it appeared to contain a flacid *Isodontia* pre-pupa. A mutillid male emerged from the *Isodontia* cocoon in an environmental chamber on 13 March 1997. Within the *Isodontia* cocoon, the mutillid had spun its own cocoon. This is believed to be the first report of a mutillid parasite from *I. mexicana*, although Bohart and Menke (1976) reported that *Sphaerophthalma* has been bred from the nest of *I. elegans* (F. Smith).

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